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5 Ultra-broadband Raman amplification with spatially diverse pumps

Perlin, V.E.; Winful, H.G.;

Lasers and Electro-Optics, 2002. CLEO '02. Technical Digest. Summaries of Pap Presented at the , 19-24 May 2002

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Perlin, V.E.; Winful, H.G.;

Photonics Technology Letters, IEEE , Volume: 14 Issue: 8 , Aug. 2002

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Perlin, V.E.; Winful, H.G.;

Lightwave Technology, Journal of , Volume: 20 Issue: 3 , March 2002

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Relevance scale **1 Perlin noise pixel shaders**

John C. Hart

August 2001 Proceedings of the ACM SIGGRAPH/EUROGRAPHICS workshop on on Graphics hardwareFull text available:  [pdf\(919.41 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

While working on a method for supporting real-time procedural solid texturing, we developed a general purpose multipass pixel shader to generate the Perlin noise function. We implemented this algorithm on SGI workstations using accelerated OpenGL PixelMap and PixelTransfer operations, achieving a rate of 2.5 Hz for a 256x256 image. We also implemented the noise algorithm on the Nvidia GeForce2 using register combiners. Our register combiner implementation required 375 passes, but ran at 1.3 H ...

Keywords: Perlin noise function, hardware shading, pixel shaders, register combiners

2 Algorithms for solid noise synthesis

J. P. Lewis

July 1989 ACM SIGGRAPH Computer Graphics , Proceedings of the 16th annual conference on Computer graphics and interactive techniques, Volume 23 Issue 3Full text available:  [pdf\(4.69 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**3 Procedural texture mapping on FPGAs**

Andy G. Ye, David M. Lewis

February 1999 Proceedings of the 1999 ACM/SIGDA seventh international symposium on Field programmable gate arraysFull text available:  [pdf\(1.05 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)**4 Improving noise**

Ken Perlin

July 2002 ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Computer graphics and interactive techniques, Volume 21 Issue 3Full text available:  [pdf\(394.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Two deficiencies in the original Noise algorithm are corrected: second order interpolation discontinuity and unoptimal gradient computation. With these defects corrected, Noise both looks better and runs faster. The latter change also makes it easier to define a uniform mathematical reference standard.

Keywords: procedural texture

5 **The synthesis and rendering of eroded fractal terrains**

F. K. Musgrave, C. E. Kolb, R. S. Mace

July 1989 **ACM SIGGRAPH Computer Graphics , Proceedings of the 16th annual conference on Computer graphics and interactive techniques**, Volume 23 Issue 3

Full text available:  [pdf\(5.83 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



6 **Real-time bump map synthesis**

Jan Kautz, Wolfgang Heidrich, Hans-Peter Seidel

August 2001 **Proceedings of the ACM SIGGRAPH/EUROGRAPHICS workshop on on Graphics hardware**

Full text available:  [pdf\(764.07 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



In this paper we present a method that automatically synthesizes bump maps at arbitrary levels of detail in real-time. The only input data we require is a normal density function; the bump map is generated according to that function. It is also used to shade the generated bump map.

The technique allows to infinitely zoom into the surface, because more (consistent) detail can be created on the fly. The shading of such a surface is consistent when displayed at different distances to the ...

7 **Spot noise texture synthesis for data visualization**

Jarke J. van Wijk

July 1991 **ACM SIGGRAPH Computer Graphics , Proceedings of the 18th annual conference on Computer graphics and interactive techniques**, Volume 25 Issue 4

Full text available:  [pdf\(8.67 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



Keywords: flow visualization, fractals, particle systems, scientific visualization, texture synthesis

8 **Sampling procedural shaders using affine arithmetic**

Wolfgang Heidrich, Philipp Slusallek, Hans-Peter Seidel

July 1998 **ACM Transactions on Graphics (TOG)**, Volume 17 Issue 3

Full text available:  [pdf\(590.82 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



Procedural shaders have become popular tools for describing surface reflectance functions and other material properties. In comparison to fixed resolution textures, they have the advantage of being resolution-independent and storage-efficient. While procedural shaders provide an interface for evaluating the shader at a single point, it is not easily possible to obtain an average value of the shader together with accurate error bounds over a finite area. Yet the ability to compute ...

Keywords: affine arithmetic

9 [Antialiased parameterized solid texturing simplified for consumer-level hardware implementation](#)

John C. Hart, Nate Carr, Masaki Kameya, Stephen A. Tibbitts, Terrance J. Coleman
July 1999 **Proceedings of the 1999 Eurographics/SIGGRAPH workshop on Graphics hardware**

Full text available:  [pdf\(1.86 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: antialiasing, hardware, procedural texturing, solid texturing

10 [A cellular texture basis function](#)

Steven Worley
August 1996 **Proceedings of the 23rd annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(66.92 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

11 [Shading and shaders: Shader metaprogramming](#)

Michael D. McCool, Zheng Qin, Tiberiu S. Popa
September 2002 **Proceedings of the conference on Graphics hardware 2002**

Full text available:  [pdf\(630.20 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Modern graphics accelerators have embedded programmable components in the form of vertex and fragment shading units. Current APIs permit specification of the programs for these components using an assembly-language level interface. Compilers for high-level shading languages are available but these read in an external string specification, which can be inconvenient. It is possible, using standard C++, to define a high-level shading language directly in the API. Such a language can be nearly indist ...

12 [Motion texture: a two-level statistical model for character motion synthesis](#)

Yan Li, Tianshu Wang, Heung-Yeung Shum
July 2002 **ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Computer graphics and interactive techniques**, Volume 21 Issue 3

Full text available:  [pdf\(5.06 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we describe a novel technique, called motion texture, for synthesizing complex human-figure motion (e.g., dancing) that is statistically similar to the original motion captured data. We define motion texture as a set of motion textons and their distribution, which characterize the stochastic and dynamic nature of the captured motion. Specifically, a motion texton is modeled by a linear dynamic system (LDS) while the texton distribution is represented by a transition matrix indicat ...

Keywords: linear dynamic systems, motion editing, motion synthesis, motion texture, texture synthesis

13 [Comparing LIC and spot noise](#)

Wim de Leeuw, Robert van Liere
October 1998 **Proceedings of the conference on Visualization '98**

Full text available:  [pdf\(1.23 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: flow visualization, texture synthesis

14 Structural modeling of flames for a production environment

Arnauld Lamorlette, Nick Foster

July 2002 **ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Computer graphics and interactive techniques**, Volume 21 Issue 3

Full text available:  pdf(812.38 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper we describe a system for animating flames. Stochastic models of flickering and buoyant diffusion provide realistic local appearance while physics-based wind fields and Kolmogorov noise add controllable motion and scale. Procedural mechanisms are developed for animating all aspects of flame behavior including moving sources, combustion spread, flickering, separation and merging, and interaction with stationary objects. At all stages in the process the emphasis is on total artistic a ...

Keywords: animation systems, convection, fire, flames, kolmogorov spectrum, physically-based modeling, wind fields

15 Global illumination using local linear density estimation

Bruce Walter, Philip M. Hubbard, Peter Shirley, Donald P. Greenberg

July 1997 **ACM Transactions on Graphics (TOG)**, Volume 16 Issue 3

Full text available:  pdf(22.31 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This article presents the density estimation framework for generating view-independent global illumination solutions. It works by probabilistically simulating the light flow in an environment with light particles that trace random walks origination at luminaires and then using statistical density estimation techniques to reconstruct the lighting on each surface. By splitting the computation into separate transport and reconstruction stages, we gain many advantages including reduced memory u ...

Keywords: decimation, density estimation, particle tracing, realistic image synthesis, regression

16 Real-time procedural textures

John Rhoades, Greg Turk, Andrew Bell, Andrei State, Ulrich Neumann, Amitabh Varshney

June 1992 **Proceedings of the 1992 symposium on Interactive 3D graphics**

Full text available:  pdf(822.02 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

17 Generating textures on arbitrary surfaces using reaction-diffusion

Greg Turk

July 1991 **ACM SIGGRAPH Computer Graphics , Proceedings of the 18th annual conference on Computer graphics and interactive techniques**, Volume 25 Issue 4

Full text available:  pdf(6.01 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: biological models, reaction-diffusion, texture mapping

18 Motion capture assisted animation: texturing and synthesis

Katherine Pullen, Christoph Bregler

July 2002 **ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Computer graphics and interactive techniques**, Volume 21 Issue 3Full text available:  pdf(274.39 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We discuss a method for creating animations that allows the animator to sketch an animation by setting a small number of keyframes on a fraction of the possible degrees of freedom. Motion capture data is then used to enhance the animation. Detail is added to degrees of freedom that were keyframed, a process we call texturing. Degrees of freedom that were not keyframed are synthesized. The method takes advantage of the fact that joint motions of an articulated figure are often correlated, so that ...

Keywords: animation, motion capture, motion synthesis, motion texture**19 A shading language on graphics hardware: the pixelflow shading system**

Marc Olano, Anselmo Lastra

July 1998 **Proceedings of the 25th annual conference on Computer graphics and interactive techniques**Full text available:  pdf(238.26 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**Keywords:** procedural shading, real-time image generation, shading language**20 Multi-frequency noise for LIC**

Ming-Hoe Kiu, David C. Banks

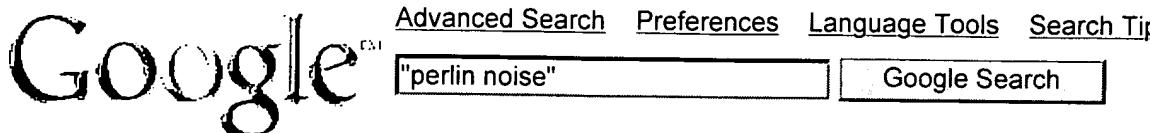
October 1996 **Proceedings of the conference on Visualization '96**Full text available:  pdf(8.50 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

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Some web pages for Ken Perlin: My home page at NYU. Embodying emotion in 3D actors (GDC 2002 course notes). Noise-related things: Tutorial ...

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Macromedia - DevNet : Generating Perlin Noise with Director MX

... For those of you not in the know, **Perlin noise** and its various derivatives and enhancements are used throughout the 3D games industry to provide more realistic ...

www.macromedia.com/devnet/mx/director/articles/perlin_noise.html - 53k - Jul 9, 2003 - [Cached](#) - [Similar pages](#)

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Perlin Noise and Turbulence. ... The following shows increasing harmonics of 1 dimensional **Perlin noise** along with the sum of the first 8 harmonics at the bottom. ...

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... **Perlin Noise.** Last Updated: 05/10/2001. This example shows how to calculate **perlin noise** in a vertex shader. This demo requires the NVEffectsBrowser to run. ...

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Ken Perlin's homepage

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[PDF]A Perlin Noise Pixel Shader

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Perlin Noise Pixel Shaders John C. Hart University of Illinois, Urbana-Champaign

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